

CHAPTER 3

TELEVISION GRAPHICS

Overview

Introduction

Shipboard closed-circuit television and shore commands with their own television broadcast systems use graphics material. Television and video are a visual imaging media. You should have a basic understanding of television graphics and their preparation to fully exploit television as a communications device.

Objectives

The material in this chapter enables you to do the following:

- Compare the impact of televised media to slide or viewgraph presentations.
 - Identify the transmission sequence in television theory.
 - Identify the aspect ratio of graphics prepared for television transmission.
 - Select a value scale or color key to use in television presentations.
 - Differentiate between disclosure devices in television transmission.
 - Construct a storyboard.
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Overview, Continued

Acronyms

The following table contains a list of acronyms you must know to understand the material in this chapter:

Acronym	Meaning
CCD	Charge Coupled Device
CG	Character Generator
CPU	Computer Processing Unit
CRT	Cathode-Ray Tube
RAM	Random Access Memory
TV	Television

In this chapter

This chapter covers the following topics:

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Television Theory

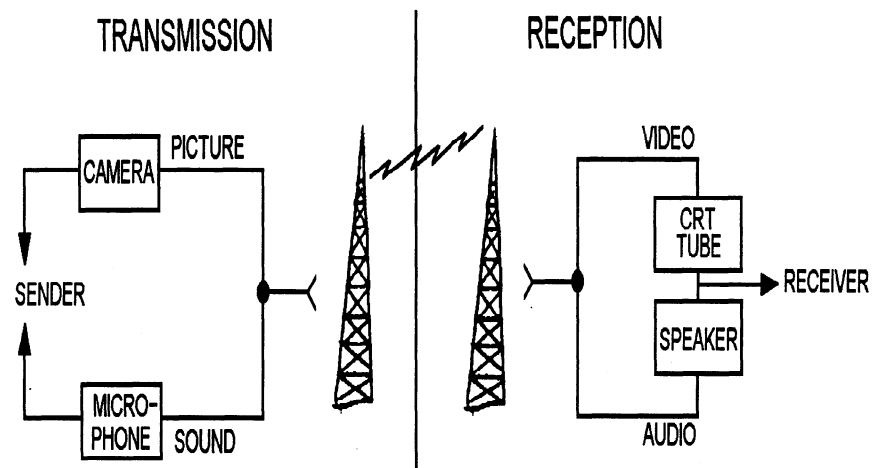
Introduction

Television is the offspring of three media-theater, film, and radio. Numerous technical advances include programmable television, unlimited channel access, stereo sound, vivid color, and video cassette and computer hook-up. The basic theory remains focused on the cathode-ray tube (CRT).

Basic theory

Television and video cameras detect and digitally convert light rays reflected from a scene or subject into electrical impulses. These cameras use charge coupled device (CCD) technology to perform this conversion. Microphones pick up and transmit sound as electrical impulses. These electrical impulses are simultaneously sent to a transmitter or recorded on tape. To view the program, the transmitter sends a signal to a television set that acts as a receiver for the signal. Inside the receiver, the signals are separated into impulses of video and audio. The video and audio circuits change the signals into pictures on the face of the CRT tube and sound from the loudspeakers.

Figure 3-1 shows a pictorial diagram of the concept of television.



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Figure 3-1. —The concept of television.

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Television Theory, Continued

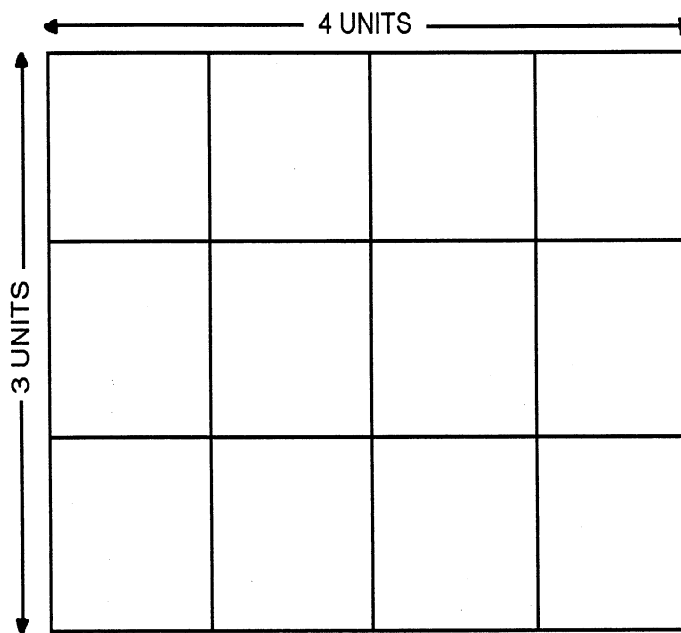
Television and video cameras

Television and video cameras see light reflected from objects in a scene. This light varies according to the lighting and shade on an object. A television camera is optically similar to a movie camera but it does not use film.

Picture tube

The shape of a normal picture tube, or the aspect ratio is 3 to 4. It is the ratio of the height to the width of a video frame or television tube. This dimension approximates the dimensions or ratio of the normal range of vision.

Figure 3-2 shows a representation of the aspect ratio of television.



DMJA0069

Figure 3-2. —Television aspect ratio.

Television Graphics

Introduction

The images you see on television are a combination of human talents, television (TV) graphics or recorded films. Color slides, credit captions, titles, photographs, diagrams, and film footage all fall into the category of TV graphics. Graphics intended for TV transmission are created on studio cards or with a character generator (CG).

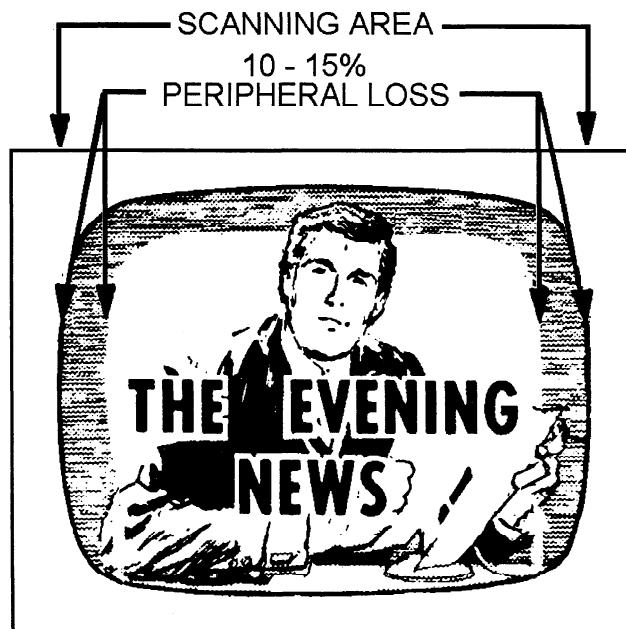
Limitations

Within the 3:4 aspect ratio, there are three area limitations that affect the creation of graphics intended for transmission. The three area limitations are the scanning area, the essential area, and the border area.

Scanning area

The total picture or area the camera sees is called the scanning area. The transmission and reception of electrical impulses include a peripheral loss of 10- to 15-percent of the total scanning area. This loss results in distortion and is less visible in scenes, where it appears as blurred resolution, and most visible with text, where it renders text illegible.

Figure 3-3 shows the scanning area of a TV screen.



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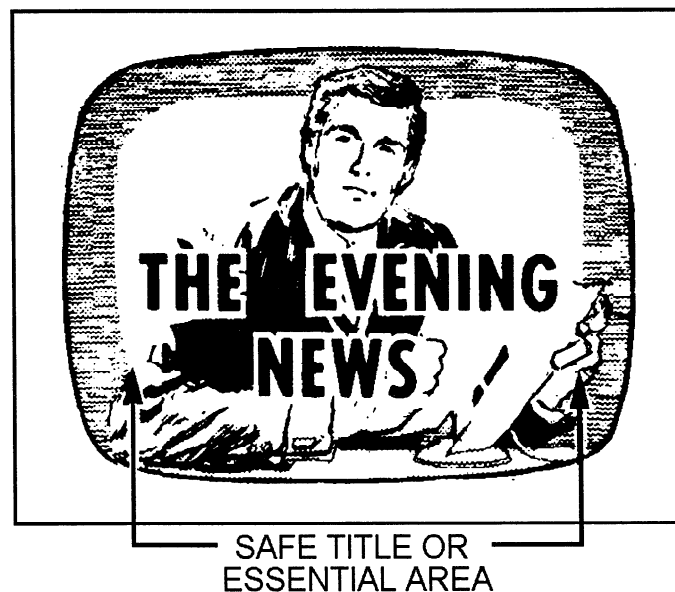
Figure 3-3. —Scanning area.

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Television Graphics, Continued

Essential area The essential area is the part of the screen that displays images with maximum resolution or clarity. Include all titles and lettering in the essential area or the lettering will not project without distortion. The essential area is also referred to as the safe title area.

Figure 3-4 shows the essential area, or safe title area of a TV screen.



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Figure 3-4. —Safe title area.

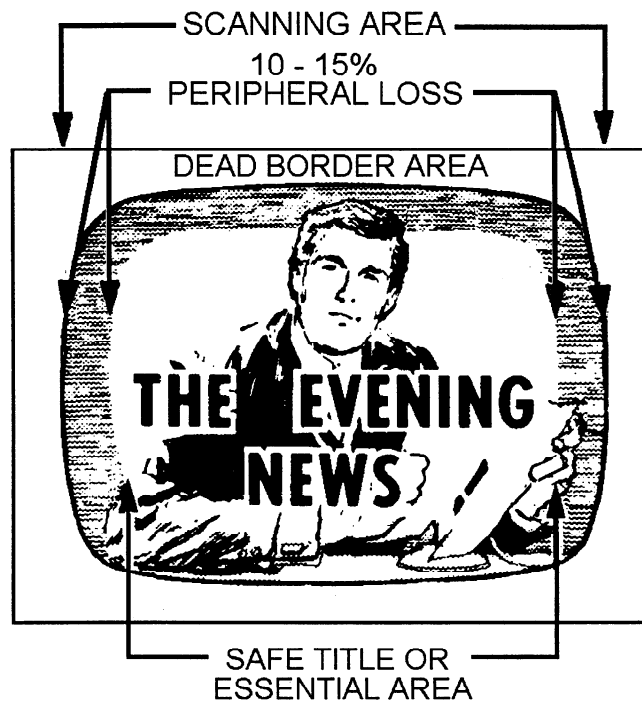
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Television Graphics, Continued

Border area

The border area is as important to a graphic as the scanning and essential areas even though the border area is part of graphic designed not to be seen. The border area around a graphic protects it from damage by mishandling. The border also prevents the camera from seeing past the art or card at some behind-the-scenes activity.

Figure 3-5 shows-all the area limitations for TV graphics that we discussed.



DMJA0072

Figure 3-5. —Area limitations.

Character Generators

Introduction

When you intend to use only printed information on a graphic, you should use a character generator (CG) to generate the text. A CG saves time and removes the tedium of laying out mass quantities of text.

Character generators

A character generator is a computer graphics system used widely in closed circuit and broadcast television. It creates text (letters and numbers) in a variety of sizes and fonts. A CG has a keyboard similar to a microcomputer and can store text on a floppy or hard disc drive system. A CG requires no special skill to operate and allows the user to make flawless letters.

Figure 3-6 is a character generator (CG).

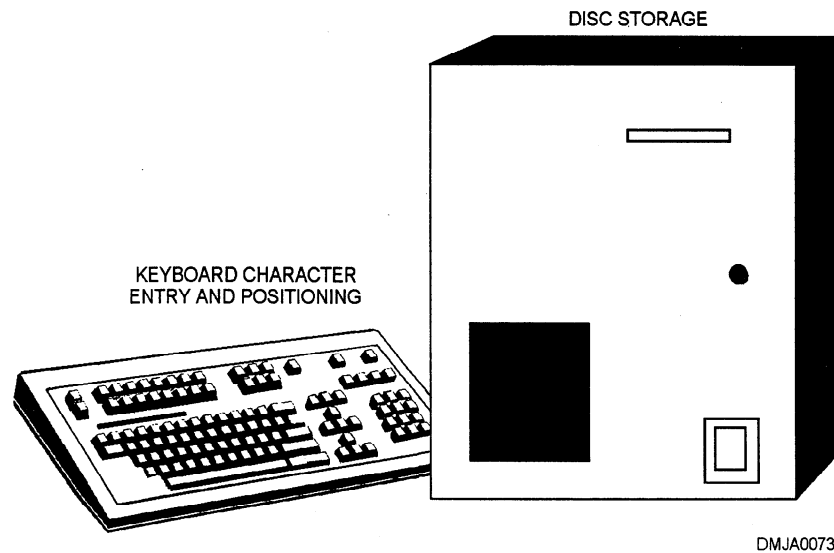


Figure 3-6. —Character generator.

Studio Cards

Introduction

Studio cards are artwork created for television transmission and are frequently created on a cardstock or rigid backing. Rigidity makes cardstock easier to handle in front of the camera. Studio cards are classified according to function.

Size

No single card size is appropriate for all television artwork or pictures. A generally accepted standard for cards is 10 by 12 inches. Using this standard size card offers the following advantages:

- Easy handling. There is enough boarder to prevent damage to the art. It is also easier to handle many cards on a card stand in front of the camera when they are all the same size.
 - Easy filing. The size of this card easily fits into a standard size office filing cabinet.
 - Economy. You can cut 9 standard size cards from 30- by 40-inch board stock without waste.
 - Convenience. Most art and photographs fit this size card.
-

Style

The style of a graphic should match the style of the program or subject. Titles should reflect the character of the show without being tactless or obtrusive.

Contrast

The contrast of graphics cards for television reproduction refers to the amount of light and dark areas in the picture. This is critical for good reproduction, particularly in black and white transmission. Limit your palette on a color graphic to three tints and two shades of each intense hue. More than six values of a single hue are hard to distinguish. Light tints of hues, such as a yellow, will fade into white. Shades of blues and reds may appear black. Greys are difficult to reproduce accurately. Use a mat finish paint or medium. The best way to determine the most responsive palette for your television system is to experiment with it.

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Studio Cards, Continued

Legibility

Content (text or image) and image size affect the legibility of television graphics. Contrast text sharply with the background. Reduce large or complicated material to simple and essential elements or rearrange and divide information into units. You should set standards of uniformity in text size by defining the limitations in maximum and minimum height. Attempt to confine text to no more than 10 words on the screen at a time. Eliminate very fine detail from the imagery. Keep it simple and bold to increase emphasis and strengthen impact.

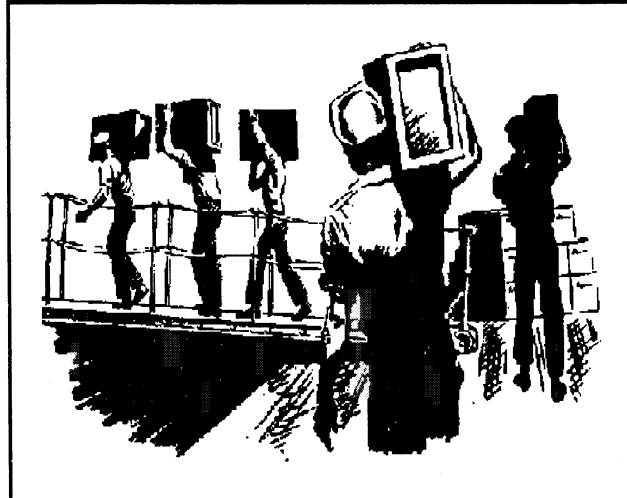
Types

The four types of studio cards are the standard studio card, the plain title card, the illustrated title card, and the super title card.

Standard studio cards

Standard studio cards contain only illustrations or pictures. Lettering never appears on a standard studio card. Often, viewgraphs or 35mm slides are made from the standard studio card.

Figure 3-7 is an example of a standard studio card.



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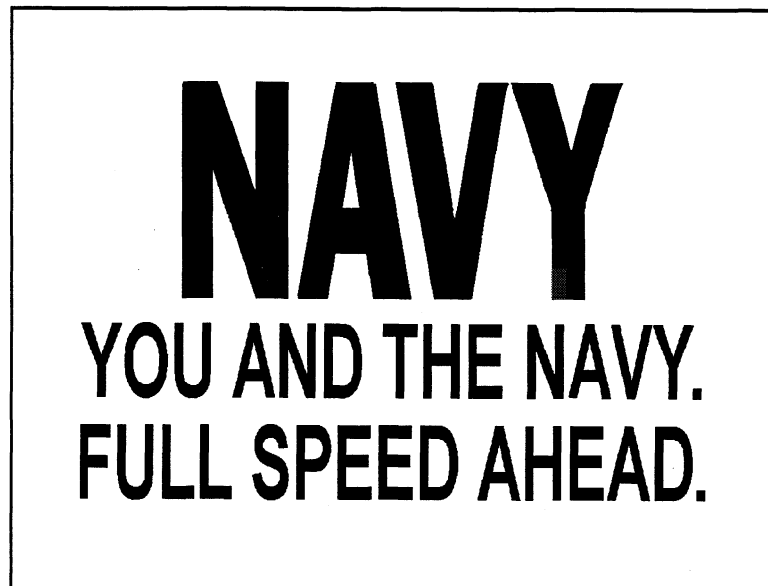
Figure 3-7. —Standard studio card.

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Studio Cards, Continued

Plain title cards Plain title cards contain printed information or text only. The card is dark or light with contrasting letters to give the needed information in as few words as possible.

Figure 3-8 is an example of a plain title card.



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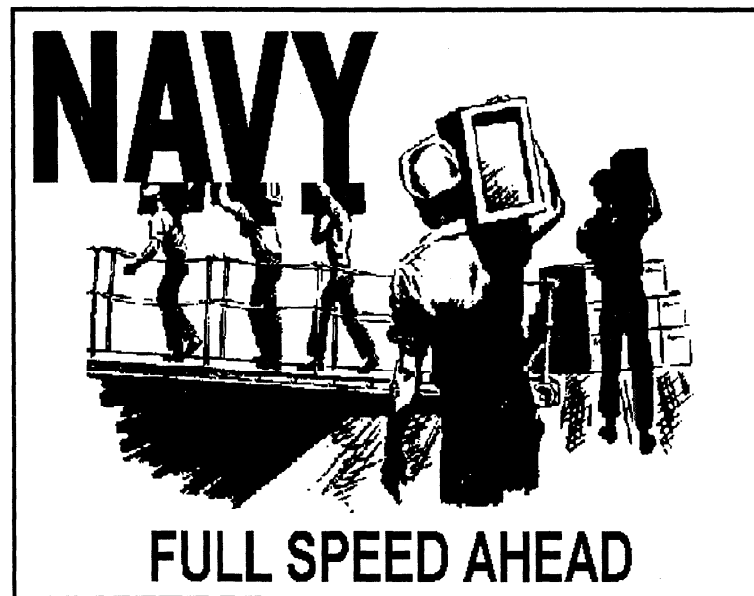
Figure 3-8. —Plain title card.

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Studio Cards, Continued

Illustrated title cards Illustrated cards have both text and images. Image may be artwork or photographic. Lettering may be on the card itself or on an overlay.

Figure 3-9 is an example of an illustrated title card.



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Figure 3-9. —Illustrated title card.

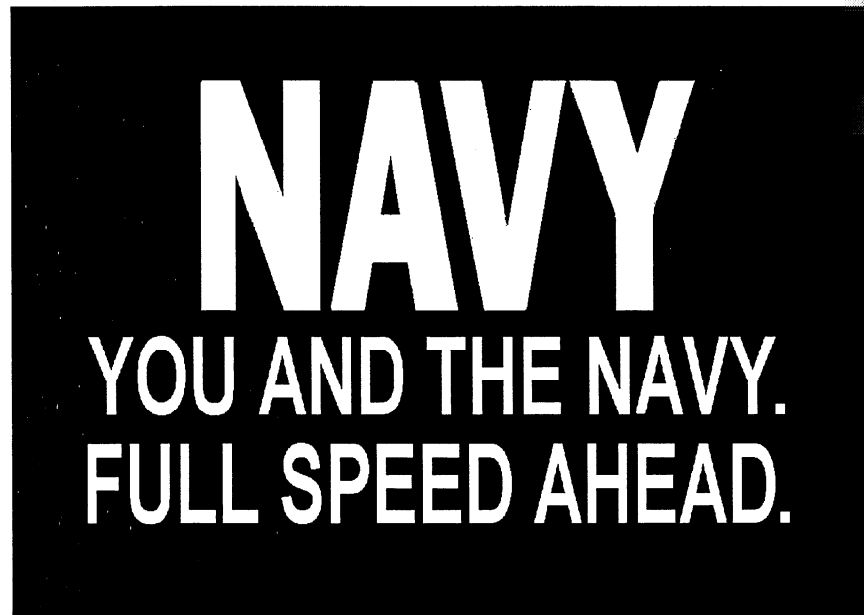
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Studio Cards, Continued

Super title cards

Super title cards have white lettering over a black background. The background is later dropped out and the image transposed over the image seen by another camera. Closing credits of a program are telecast with super title cards. Do not superimpose text over faces.

Figure 3-10 shows a super title card.



DMJA0077

Figure 3-10. —Super title card.

Disclosure Devices

Introduction	Controlling the amount and the sequence with which information is shown to a viewer is known as progressive disclosure. Any device or method used to control disclosure is a disclosure device.
Analog or digital programmers	Analog or digital programmers are disclosure devices that make text appear to roll onto the screen without disrupting regular television programming. Weather bulletins are an example of the use of an analog or digital programmer.
Tilt cards	Vertically oriented cards whose information exceeds the capabilities of the camera and requires an up and down motion of the camera to transmit all information are known as tilt cards. Use tilt cards only for creative effects or when it is not possible to divide visuals into smaller segments.

Figure 3-11 is a tilt card.

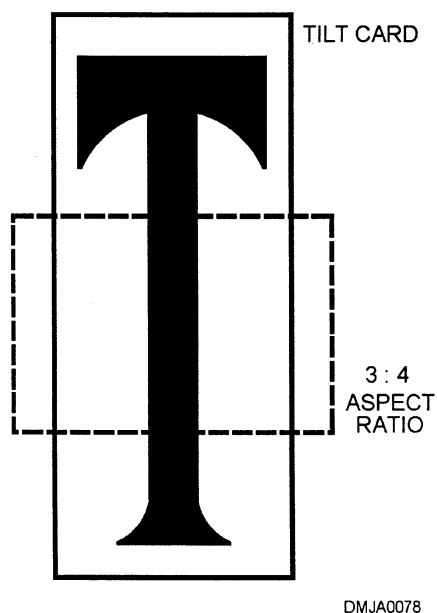


Figure 3-11. —A tilt card that vertically exceeds the vertical limitations of the aspect ratio.

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Disclosure Devices, Continued

Pan cards

A card where the information exceeds the horizontal angle of view of the camera and requires the camera to travel side-to-side, the length of the card, is known as a pan card. Use pan cards only for creative effects or when you cannot simplify visuals.

Figure 3-12 is a pan card.

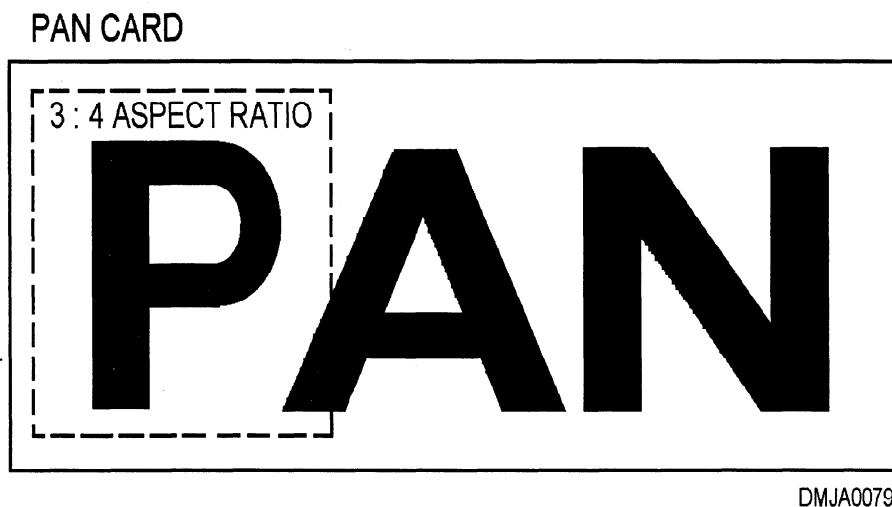


Figure 3-12. —A pan card that horizontally exceeds the horizontal limitations of the aspect ratio.

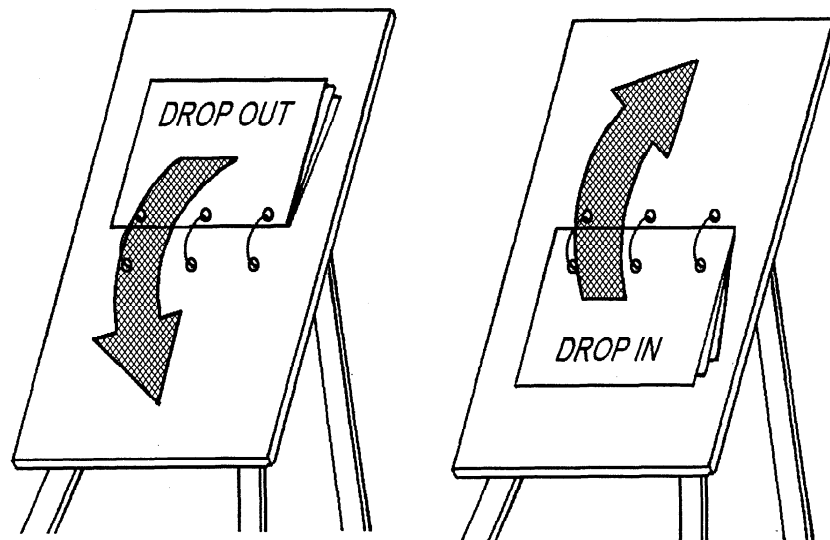
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Disclosure Devices, Continued

Drop-in or drop-out cards

Information displayed on drop-in or drop-out cards appear to fall into or out of view. These cards are advantageous for presenting large amounts of information. These devices resemble a three-ringed binder rigged horizontally. Perforations appear on the top or bottom of each card.

Figure 3-13 is an example of a drop-in/drop-out device.



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Figure 3-13. —Drop-in/drop-out device.

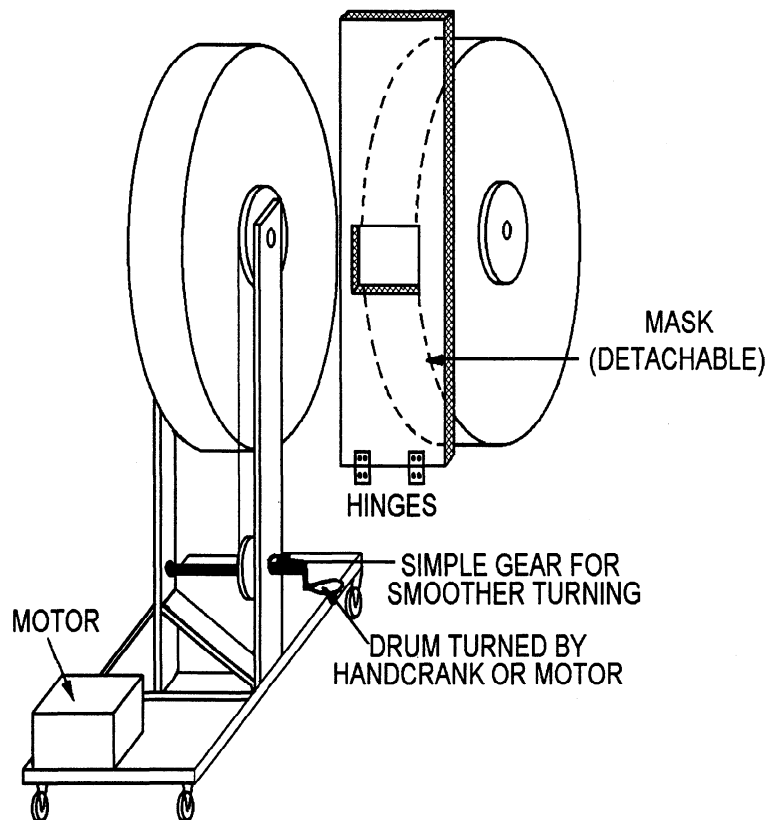
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Disclosure Devices, Continued

Crawl

A drum, called a crawl, rotated by hand or by motor to which you attach a series of lettering on a long strip of paper, is known as a crawl device. The lettering appears to scroll onto the screen and off again. Most often, the lettering contrasts against a background and is superimposed over an image. Many TV shows use a crawl device to display closing credits.

Figure 3-14 shows examples of crawl devices.



DMJA0081

Figure 3-14. —A crawl device.

Basic Production

Introduction

Television production is extremely complex and expensive. It requires a high degree of coordination among many people. Standardizing procedures as much as possible alleviates confusion. Breaking each scene into basic elements or steps by story treatment, storyboarding, and scripting also helps simplify the task of creating television productions.

Story treatment

The story treatment is a word picture of the proposed presentation and is usually written in the form of a scenario of the production on story cards. Make decisions regarding the overall treatment, prevailing mood, and the production content at this time. Make a detailed written treatment to clearly define the direction the production is to take.

Figure 3-15 shows a blank story card.

NO. _____

NARRATION:

REMARKS:

IMAGE

DMJA0082

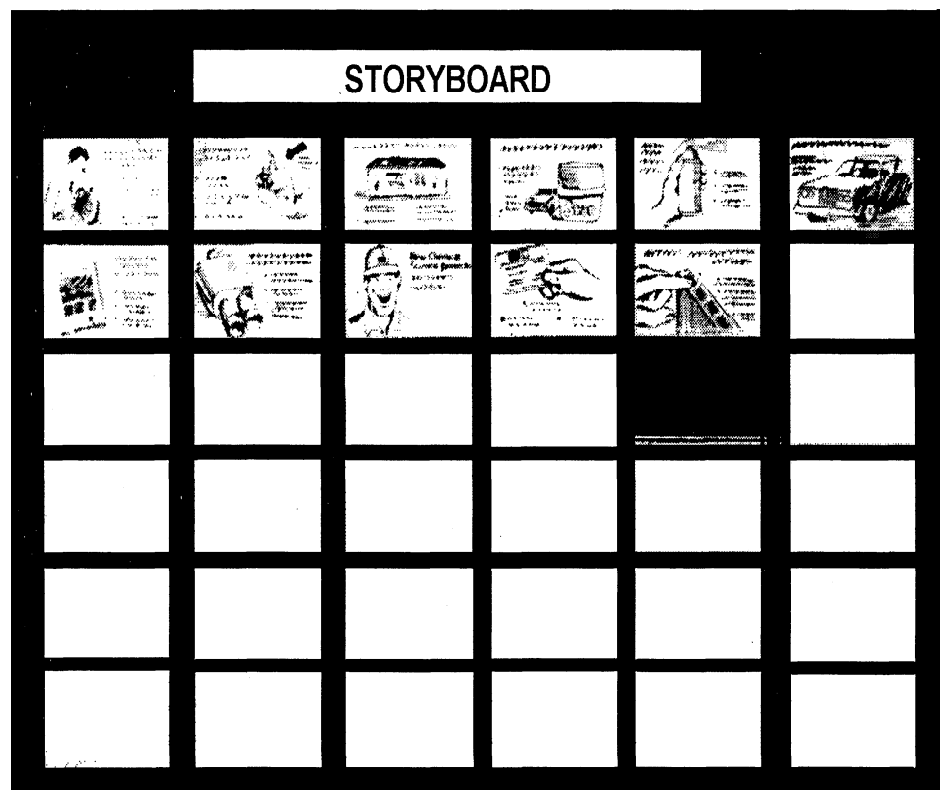
Figure 3-15. —A blank story card.

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Basic Production, Continued

Storyboarding A storyboard displays all the story cards associated with a production. A storyboard or a planning board organizes the visuals or scenes in logical progression. Write key scenes or points on 3- by 5-inch cards, one idea per card. Repeat the process until no more ideas come to mind. Arrange the cards in logical sequence. Edit by adding or deleting cards from the storyboard. Arrange the cards to represent the continuity or flow of the complex production.

Figure 3-16 shows a storyboard.



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Figure 3-16. —A storyboard.

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Basic Production, Continued

Script

The script is the producer's blueprint. It is a working plan used to translate ideas into audiovisual productions. Script are necessary regardless of the length or apparent simplicity of a production. The time and money they save are worth the extra effort to create them. Scripts follow a planned pattern beginning with an original idea for a scenario and ending with a word diagram. A script contains more than the spoken dialogue; it also contains the proposed production treatment (media), the action outline, the shot breakdown, and the shooting order. In short, scripts should contain all information required to complete the project, including scene locations, costumes, camera set-ups, lighting requirements, props, and special photographic and sound effects.

Series Production

Introduction

At times, you may create a series of training segments or briefs. Make each installment of a series similar in format and attitude. Maintaining uniformity allows you to concentrate on the production without having to make the preliminary decisions over again. Uniformity also identifies a particular segment as part of a larger series and relieves the audience of having to switch gears or mind set for each training segment.

Documentation

When you create a training series, complete a folder for each installment. Write down all the production information as accurately and detailed as possible. Maintain continuity throughout the production by regularly referring to the data compiled in the first production folder. When necessity demands alterations or changes, incorporate these changes throughout the production, if practical.

Computer-Generated Production

Introduction

Computers produce most of the graphics you see on TV news programs. Although most commands do not require the high a degree of sophistication that the networks do, there are several flag staff commands that use similar technology. Some staff briefs require imagery manipulation and the integration of supplemental information may appear in some flag briefs or command indoctrinations. Two types of television production you should understand are infographics and infomercials.

Infographics

Infographics is any artwork you create electronically (by computer) for transmission via CRT. These stills should conform to the correct aspect ratio of conventionally prepared artwork. Infographics is created primarily to inform or instruct.

Infomercials

Infomercials involve live action, video footage electronically (by computer) enhanced or altered for transmission via CRT as opposed to direct film footage without electronic manipulation. Infomercials are not documentaries. Their primary motivation is to sell or influence thoughts or actions. Infomercials have a clearly intended commercial message.

Hardware

Hardware requirements for text integration and video manipulation vary. Video and graphics consume extensive amounts of RAM memory in addition to the applications software occupying hard drive memory.

Software

To add text to a video production requires a text integration software package. Let the needs or projected needs of the shop dictate the selection of software. Remember that software packages require extensive memory and a CPU capable of high processing speed.

Summary

Review

This chapter covers elementary theory of television transmission. Graphics, produced within area limitations and color restrictions, project well. Progressive disclosure adds dimension to an otherwise static display of information. Computer-generated art or video footage is rapidly replacing standard studio television graphics.

Comments

It is unfortunate so few Illustrator Draftsmen have the opportunity to interface on a large scale with computer-generated television graphics. Video manipulation is a fascinating and mushrooming field. Prime examples of the fluidity of the medium are the movies *Forrest Gump* and *Toy Story*. In *Forrest Gump*, familiar images were inperceptivley manipulated to give false impressions. *Toy Story* is the pinnacle of animated three-dimensional sophistication. Should you have the opportunity to use computer graphics in an official capacity for the Navy, you have a moral, ethical, and legal obligation to portray imagery truthfully. Research the instructions that pertain to audiovisual imagery and follow them.

